

WHAT IS CLAIMED IS:

1. A drive system changing device actuated in an emergent operation, the device comprising:

a vehicle speed detecting means detecting a vehicle speed before a start
5 of deceleration;

a deceleration detecting means detecting a negative acceleration due to a sudden braking;

a steering angle detecting means detecting a steering angle when a sudden steering operation is performed in the sudden braking;

10 a determination means determining whether or not to change a drive system from a result obtained from each means of said vehicle speed detecting means, said deceleration detecting means, and said steering angle detecting means;

a driving force separating means changing a four wheel drive system to
15 a front wheel drive system and a rear wheel drive system by separating a part of a driving force transmitting unit of the four wheel drive system according to a determination of said determination means; and

a drive system returning means returning the drive system changed to the front wheel drive system and the rear wheel drive system after the
20 emergent operation by said driving force separating means to the four wheel drive system.

2. A drive system changing device according to claim 1, wherein said determination means is controlled by an electronic controller.

3. A drive system changing device according to claim 1, the method
25 furthermore having:

a vehicle weight detecting means detecting a difference between a

prescribed vehicle weight and a vehicle weight in running; and

a drive system change-actuation judging means actuating said drive system changing device only when an increment of the vehicle weight detected by said vehicle weight detecting means is more.

5 4. A drive system changing device according to claim 3, wherein said drive system change-actuation judging means is controlled by an electronic controller.

5. A drive system changing method actuated in an emergent operation, the method comprising the steps of:

10 a vehicle speed detecting step detecting a vehicle speed before a start of deceleration;

a deceleration detecting step detecting a negative acceleration due to a sudden braking;

15 a steering angle detecting step detecting a steering angle when a sudden steering operation is performed in the sudden braking;

a determination step determining whether or not to change a drive system from a result obtained from each step of said vehicle speed detecting step, said deceleration detecting step, and said steering angle detecting step;

20 a driving force separating step changing a four wheel drive system to a front wheel drive system and a rear wheel drive system by separating a part of a driving force transmitting unit of the four wheel drive system according to a determination of said determination step; and

25 a drive system returning step returning the drive system changed to the front wheel drive system and the rear wheel drive system after the emergent operation by said driving force separating step to the four wheel drive system.

6. A drive system changing method according to claim 5, the method

further comprising the steps of:

a vehicle weight detecting step detecting a difference between a prescribed vehicle weight and a vehicle weight in running;

wherein only when an increment of the vehicle weight detected by said vehicle weight detecting step is more, said determination step is a determination step to determine whether or not to change a drive system from a result obtained from each step of said vehicle speed detecting step, said deceleration detecting step, and said steering angle detecting step.

7. A program executable by an electronic controller according to claim 2 controlling a drive system changing device, the program making the electronic controller:

monitor a vehicle speed as needed by acquiring detected and output data by said vehicle speed detecting means;

monitor deceleration in a sudden braking by acquiring detected and output data by said deceleration detecting means;

monitor a steering angle detecting means by acquiring detected and output data by said steering angle detecting means;

perform a computation whether or not an alarm range recorded in advance is reached based on each data monitored by said deceleration detecting means and said steering angle detecting means;

actuate said driving force separating device when as a computation result a state of front tires due to an emergent operation is judged to be in the alarm range recorded in advance, and transmit a signal to change a four wheel drive system to a two wheel drive system; and

actuate said driving force separating device again after the emergent operation, and transmit a signal to return the two wheel drive system to the

four wheel drive system.

8. A program executable by an electronic controller according to claim 4 controlling a drive system changing device, the program further making the electronic controller:

5 judge whether or not an increment of a vehicle weight reaches an alarm range recorded in advance by acquiring data detected by said vehicle weight detecting means; and

transmit a signal to actuate said driving force separating device when the increment of the vehicle weight reaches the alarm range recorded in
10 advance.